Funding for Technology

South Carolina has made great strides in integrating technology into all phases of the curriculum and providing equitable access to all members of the educational community. A major component for continuing this technology integration must be consideration of the monetary support necessary for maintaining the hardware, software, and professional development opportunities needed to keep current.

Realistic budgeting for technology is part of the district planning process. Clearly defined goals and measurable objectives help establish district funding priorities. Criteria for funding district initiatives should be flexible and subject to a constructive review process designed to aid districts in the planning and implementation stages. This process should ensure not only a sequential, orderly development of technology in the district and its schools but also the construction of the infrastructure at the school and district level to give all schools and libraries access to the state infrastructure.

South Carolina must maintain the global view of providing access for all students regardless of where they live and attend school. A good example of this is *DISCUS - South Carolina's* Virtual Library. It provides a common core of databases to schools, colleges, and public libraries statewide to ensure equity of access to information.

Building a technology-rich learning environment requires a statewide commitment from the school and district leadership, from the educators and students, and from the business and school communities. Funding for school technology is ongoing, and there are no simple funding solutions. There is a considerable amount of financial assistance available from federal, state, and private funding sources.

South Carolina education has strong support from various sectors for technology integration. From the first year line item technology funding of $3,250,000 in FY95, state technology funding in South Carolina has grown to support the K-12 library/ technology infrastructure, technology professional development, and substantial flow-through funds to school districts for hardware, software, and professional development.

State Contracts for Leasing Computers

http://www.state.sc.us/mmo/contract/it/lpcindx. htm

Creative funding of the wide range of technology tools necessary to support student learning requires leveraging a variety of state, federal, and local funding sources to accomplish the established technology goals. Leasing computers is an option that provides school districts continuing access to up-to-date computers.

The Foundation Center Online
http://fdncenter.org/

Funding and Grants - Education Place
http://www.eduplace.com/techcentlgrantsl

Schools and districts should explore partnerships with businesses, the community served by the school, hardware/software companies, and local post-secondary institutions in order to secure additional funding and support for future technology implementation. Technology funding sources include district general funds, district funds earmarked for technology, private foundations, local bonds, and grants.

Apple License Plates
http://www.state.sc.us/sdelednewsl1998/pmsctag. htm

Apple license plates are among other initiatives that have provided funds for South Carolina's schools to purchase technology. Since October 1996, South Carolinians have purchased 6,967 apple license plates for their vehicles generating a total of $376,164 for districts (figures through June, 1998).

The United States Department of Education Office of Educational Technology
http://www.ed.gov/Technology/inititiv.html

The *Technology Literacy Challenge Fund* was announced in February 1996, and the United States Congress first appropriated funds for this five-year program in 1997. The program is intended to serve as a catalyst to ensure that all students are prepared to live and work in an increasingly technological society.

Twenty-five South Carolina school districts received first year Technology Literacy Challenge Fund competitive sub-grants in September 1997 from the $2,466,995 allocation. Priority was given to school districts with the highest

percentages of children in poverty and with the greatest need for technology. Competitive sub-grants will be awarded to school districts in November 1998 from the second year $4,851,964 South Carolina funding allocation.

The sub-grants provide financial assistance to school districts for a wide range of activities to strengthen instruction through the use of technology. They are designed to assist school districts in meeting the following national technology goals: (1) All teachers and library media specialists will have the training and support they need to help all students learn through computers and through the information superhighway. (2) All teachers and students will have modern computers in their classrooms. (3) Every classroom will be connected to the information superhighway. (4) Effective and engaging software and online learning resources will be an integral part of every school curriculum.

Funding is necessary to continue the support for the state backbone, to wire all classrooms in South Carolina, to provide at least five computers and accompanying peripherals per classroom, to continue technology professional development initiatives, to support educational television access and resources, and to support and increase interactive video projects.

Recommendations

1. It is recommended that the State Legislature provide funding for full implementation and ongoing support of *Connecting Learners: The South Carolina Educational Technology Plan.* Technology is an inevitable part of education because technology and information literacy are now survival skills.
2. It is recommended that all school districts use In$ite in order to best manage education dollars, establish spending priorities, and improve communications between schools and communities.

Connecting Learners — Curriculum, Standards, and Technology

Information Literacy

Today's world has been transformed by information technologies. Learning to use technology is only one facet of a student's education. More importantly, information literacy – the ability to use the information which the new technologies make available as well as the ability to use those technologies to communicate this information – is a critical learning experience. Students must acquire the skills and knowledge necessary for them to access, evaluate, and use information efficiently and effectively.

ALA Information Power Table of Contents
http://www.ala.org/aasl/ip_toc.html

New national guidelines for information literacy, *Information* Literacy Standards for Student Learning developed jointly by the American Association of School Librarians (AASL) and the Association for Educational and Communications Technology (AECT), address this issue.

Derived from research and professional literature, the *Information Literacy Standards for Student Learning* are integral to the content and objectives of the school's curriculum. The standards profile the information literate high school graduate. This graduate has the ability to use information to acquire both core and advanced knowledge and to become an independent, lifelong learner who contributes responsibly and productively to the learning community.

National Educational Standards for All Students

NETS
http://cnets.iste.org/

The International Society for Technology in Education (ISTE) is developing national standards for the educational uses of technology to support PreK-12 education. ISTE's National Educational Standards for All Students project (NETS) is developing and refining four doucuments:

- *Technology Foundation Standards for Students* describes what PreK-12 students should know about technology and what they should be able to do with technology.

Learning Connection: Resources
http://www.benton.org/Library/School/res_home.html

- *Standards for Using Technology in Learning and Teaching* describes how technology should be used throughout the curriculum for teaching, learning, and instructional management.

- *Educational Technology Support Standards* describes systems, access, staff development, and support services essential to support effective use of technology.

- *Standards for Student Assessment and Evaluation of Technology Use* describes means of assessing student progress and evaluating the use of technology in learning and teaching.

The proposed technology foundation standards for students are divided into six broad categories:

Educational Technology Integration: Basic Technology Tools for Educators
http://www.sun-associates.com/resources/categories/bastools.html#anchor88822

1. Basic operations and concepts
2. Social, ethical, and human issues
3. Technology productivity tools
4. Technology communications tools
5. Technology research tools
6. Technology problem-solving and decision-making tools

Standards within each category as well as profiles will serve as guidelines for planning activities that integrate technology into the curriculum.

Connecting to Frameworks, Grade Specific Standards and Assessments

South Carolina Curriculum Frameworks
http://ww.state.sc.us/sde/educator/crindex. htm

NAEP
http://nces.ed.gov/naep/

TIMSS
http://nces.ed.gov/TIMSS/

As understanding of the process of learning increases, it becomes apparent that the appropriate application of technology can help students meet increasingly challenging standards. In South Carolina, educators have consistently created high expectations for all students, teachers, and educational systems. The South Carolina curriculum frameworks and curriculum standards in mathematics, science, English language arts, foreign language, visual and performing arts, and social studies are correlated to world-class standards supported by the National Assessment of Education Progress (NAEP) and the Third International Mathematics and Science Study (TIMSS).

New strategies and opportunities

Web Sites with Strategies, Projects, Ideas

Blue Web'n
http://
www.kn.pacbell.
corn/wired/
bluewebn/
index.html

Jason Project
http://
www.jasonproject.
org/

The Gateway to Educational Materials
http://
www.thegateway.
org/

Learning With Technology Profile Tool
http://
www.ncrtec.org/
capacity/profile/
profwww. htm

Teachers continue to review and expand their teaching strategies by using authentic assessment, collaborative learning groups, and discovery learning. Technology offers teaching and learning opportunities never before possible. These opportunities include:

- Students having daily access to information in a variety of formats for research, problem solving, and projects.
- Sharing of instructional resources through the use of Wide Area Network and Internet connections.
- Real-time classroom interactive sessions such as virtual field trips and online discussions.
- Use of an intranet for faculty and staff to share electronically curriculum and lesson plans, common concerns, interests, and needs.
- Expanding learning opportunities via distance-education.
- Providing special-needs students with telecommunications, sensory, and other technological aides and devices.
- Including parents and community members in programs using educational technology.

Changing Roles

Teachers who use technology effectively as an instructional tool shift from a traditional lecture, two-person situation (teacher-student) to a project based, three-person situation (teacher-student-others) where students are learning from each other as well as from outside experts.

Research on learning styles indicates that effective combinations of information technology can help learners succeed (Benton Foundation, Bialo and Sivin-Kachala, Means, National Study of School Evaluation, Office of Educational Research and Improvement). How those technologies are effectively combined by the teacher and how the learner is helped to use them are fundamental to success. Students must be actively engaged in real world learning situations through challenging, collaborative tasks Applying technology appropriately to a standardsdnven cumculum will improve students' academic achievement while instilling the desire to learn.

Askeric Toolbox

http://ericir.syr.edu/Qa/Toolbox/#EDTECH

To integrate technology into instruction, teachers must rethink their teaching strategies to enhance student learning and collaboration. For example, cooperative learning allows students to be explorers, building on the diversity of students' prior knowledge. Students. are grouped into teams of two or more, and each team has the responsibility to accomplish objectives to meet the overall goal.

Even if a teacher has limited access to technology tools, such as only one video camera or computer, there are numerous ways to use these tools to engage students effectively in learning. Strategies to use when access to the computer (or other technology tool) is limited include:

Kathy Schrock's Guide for Educators
http://www.capecod.net/schrockguide/index.htm

- Creating a schedule when small teams may use the computer.
- Enlisting volunteers to assist students when working on the computer.

The One Computer Classroom
http://www.chtree.com/per/Frank/edt61 0/henderson/wq/onecomputer.html

- Ensuring that the resources on the computer are age-appropriate and at the appropriate reading level so that assistance needs are minimal.
- Training student experts to help with specific questions.
- Pairing students so that peer-tutoring can take place.

Resources for Educators

South Carolina Instructional Television
http://www.ITV.scetv.org/

In addition to supporting new approaches to learning, information technology also increases the teacher's access to professional resources. The Internet provides teachers with access to best practices, curriculum resources, lesson plans, instructional strategies, and collaborative projects. A myriad of resources is available from the South Carolina Department of Education's Instructional Television (ITV). For example, the ITV Searchable Database on CD-ROM provides educators with full text teacher guides and schedules for ITV programming.

The Role of the Media Specialist
http://www.ala.org/aasl/positions/PS_flexible.html

The school library media specialist is a valuable resource who can help teachers and students in every area of information technology applications. From finding information in a wide variety of formats in the media center or on the Web, to evaluating the information critically, to communicating the analyzed and synthesized information, the media specialist is a partner with classroom teachers, administrators, and other staff members. The South Carolina Department of Education's publication *Making Connections: Focus on South Carolina School Library Media Programs* is designed to assist media specialists, schools, and districts in planning and administering school library media programs that reflect the changing and expanded roles of the media specialist.

Technology and Assessment

Assessment and Accountability Bibliographies
http://www.nwrel.org/eval/ea_bibs/

As educators expand their application of technology in classroom instruction, they also follow the logical process of using technology as a tool to assess that instruction. Using technology as a tool for assessment offers a number of advantages including easy scoring and immediate feedback for teachers and students, flexibility in administering tests and quizzes, and testing that adapts to the individual student. Computer-based assessment also provides more effective record keeping and extensive item analysis which produce quicker and more helpful student feedback.

Ask Dr. Rubric
http://cep.cl.k12.md.us/drr/drrhome.html

Computer software programs manage information on a scale never before imagined. Computer-based simulations offer real world experiences promoting higher level thinking and problem solving. The wide variety of products that provide evidence of student achievement may be organized into electronic files, including images and sound, that are easily accessible and require little physical storage space.

As an administrative tool which can bring efficiency to the management and assessment realms of education, technology-based assessment addresses the same issues of accuracy, confidentiality, and validity as traditional methods:

- Assessment should be fair, not culturally or otherwise biased.
- Assessment must be valid; it should measure what it is

Educational Testing Service
http://www.ets.org/body.html

supposed to measure.

- Assessment must be reliable, producing consistent, repeatable results.
- Assessment should be cost-effective in terms of labor, materials, and time for both administrators of the assessment and the students being assessed.
- Assessment results must be kept confidential and used only by those who have the right to access them.

Recommendations

1. It is recommended that each school and district adopt the national information literacy standards for student learning and integrate these standards into the content areas of the curriculum.

2. It is recommended that each school and district adopt the ISTE National Educational Technology Standards for students.

3. It is recommended that each school and district include technology in the delivery of instruction and student assessment in all content areas.

Develop a passion for learning.
If you do, you will never cease to grow.
Anthony J. D'Angelo
The College Blue Book